

## STUDIES IN THE MALACHIIDAE VII

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The present number of these Studies contains merely the description of two new species from the Southwest and a few distributional records not previously published.

***Endeodes terminalis*** new species.

*Male*.—Oblong, elytra abbreviated and slightly widened posteriorly. Blackish piceous, the head (except the labrum and palpi), prothorax, apical elytral margins and legs rufotestaceous. *Head* short, rounded, 1.08 times longer than wide, anterior portion of frons shallowly bi-impressed, surface rather heavily encrusted with a brownish indument, apparently alutaceous where visible between the crusts, the details of sculpturing and pubescence obscured. Eyes small, situated about midway of the length of the head, a few erect blackish setae at the anterior angles of the clypeus and on the tempora. *Antennae* moderate in length, reaching to about the posterior pronotal margin, the segments rounded triangular, feebly serrate, finely and rather densely pubescent. *Pronotum* transverse, 1.4 times wider than long, the sides slightly convergent posteriorly, the anterior margin moderately produced, the posterior with a faint emargination at the center; surface alutaceous, not nearly so heavily encrusted as the head, no punctures visible, pubescence fine and moderately dense, a few erect setae along the anterior margin. *Elytra* 1.3 times longer than wide and occupying about 0.6 of the abdominal length, measured from the elytral base to the tip of the pygidium; humeri prominent; sides parallel, slightly diverging posteriorly; sutural margins in contact almost to the apices, which are separately rounded; surface apparently alutaceous, almost as heavily encrusted as the head; pubescence about as on the pronotum, except somewhat coarser, a few erect black setae on the humeri and along the lateral margins. The pale apical margins are somewhat crescent shaped and extend up the suture about one-seventh of the distance to the elytral base. The last four abdominal tergites are completely exposed, are shining piceous black and very finely pubescent. The shape of the pygidium cannot be definitely ascertained, as the lateral edges of the last two tergites are gnawed, apparently by dermestid larvae. *Ventral surface* shining piceous black, except the terminal sternite and the posterior margins of the other sternites, which are rufotestaceous. Lateral lobes of the terminal sternite are elongate triangular and almost reach the tip of the pygidium. Legs are rather long, the posterior tibiae slightly arcuate. Second protarsal segments extend in a lobe over the third, reaching the tip of third segments, the ends of the lobes rounded and furnished with a narrow black comb, perpendicular to the face of the lobe, the teeth of the comb visible only under high magnification. Length 2.8 mm.

*Female* unknown.

HOLOTYPE, male, "Baja. Calif., Mexico. SE end of Isla Caballo. III-20-53. J. P. Figg-Hoblyn, collector," in the collection of the California Academy of Sciences. No paratypes.

The genus *Endeodes* was reviewed by Blackwelder in 1932. He gave a rather detailed redescription of the genus and added two species to the three known up to that time. The present species agrees very well with

Dr. Blackwelder's description, except for the portion that states: "The elytra are never more than half as long as the abdomen," although Blackwelder states in his description of *abdominalis* (Lec.): "Elytra nearly as long as the abdomen." I assume that he is measuring the "abdomen" as I have done in the above description, since the anatomical anterior border of the abdomen proper is concealed both anteriorly and posteriorly. In my specimens of *abdominalis*, measured on this basis, the elytra are slightly less than half as long as the abdomen. I do not believe that the slightly longer relative length of the elytra in the present species would warrant its exclusion from the genus. The antennae and protarsi of the present species appear to be identical with Blackwelder's figures of these parts for *E. collaris* (Lec.). Positive reasons for placing it in *Endeodes*, rather than *Attalus*, are its rounded head, small eyes, combed border of the second protarsal segments and the encrustation of the dorsal surface, which would seem to indicate that the insect had been in contact with wet sand or mud. Its place of capture, at the "SE end of Isla Cerralbo," would also make it probable that it was taken on the beach, which is the habitat of all known species of the genus. It is most closely related to *E. abdominalis* (Lec.), but in this species the coloring is reversed, the elytra being black with the base ferruginous.

In my 1948 key to the North American genera of Malachiidae, the present species would be referred to *Attalusinus* Leng, on account of the sutural margins being in contact almost to the tips. However, the males of the only two described species of *Attalusinus*, which were not known at that time, have the front of the head excavated, a character which separates the two genera better than those given in the key.

Since several Malachiidae with abbreviated elytra have been placed in the genus *Attalus*, it becomes necessary to consider the described Mexican species of that genus. The present species appears to resemble *A. teapanus* Champion more closely than any other species listed by Champion (1914). *Teapanus*, however, is said to have the eyes large, the head short and differs in several details of coloration. *E. terminalis* does not at all resemble any of the six Mexican species listed by Champion as having the head "more or less elongated behind the eyes," which is the case in the present species. Since the above description was written, I have discovered that Mr. Ian Moore recently (1954) described a new species of *Endeodes*, from Baja California. Mr. Moore has very kindly given me paratypes of his new species, *E. blaisdelli*. It may be separated at once from *terminalis* by the fact that the elytra are "concolorous, ferruginous."



***Attalus leechi* new species.**

*Male*.—Form oblong, very slightly widened posteriorly. Black; labrum and anterior border of clypeus clear yellow, the basal portion of the labrum slightly infuscate; ventral surface of first five antennal segments, mandibles (except the tips), tarsi and anterior tibiae piceotestaceous. *Head* short, 1.2 times wider than long, not elongate behind the eyes, front faintly biimpressed, surface shining, punctures and pubescence very fine, a row of about eight anteriorly directed setae at the anterior edge of the clypeus. *Antennae* short, reaching almost to the posterior pronotal margin, very faintly serrate, the pubescence rather conspicuous. *Pronotum* quadrate, 1.2 times wider than long, the sides slightly arcuate, parallel, all the angles rounded; surface and white pubescence about as on the head, a few black setae at the anterior and posterior angles. *Elytra* dull, the surface minutely and transversely rugulose, not sooty or iridescent; punctures scarcely visible, pubescence white, fine and dense, conspicuous in certain lights; erect black setae numerous and evenly distributed. Ventral surface shining, punctuation and pubescence very fine, coarser on the legs; abdominal margins, posterior margin of fifth sternite, terminal sternite and pygidium rather heavily clothed with long black setae. Pygidium moderate in size, the apex broadly and squarely truncate. Lobes of second protarsal segments broad, conspicuous, reaching the tips of the third segments, with their own tips rounded and broadly bordered with black. Length 2.3 mm.

*Female* unknown.

Holotype, male, "Arizona, Sunnyside Cn., w. side Huachuca Mts., Cochise Co. 6000 ft. 4-VIII-52. H. B. Leech and J. W. Green collectors," in the collection of the California Academy of Sciences. No paratypes.

The present species runs to *Attalus pallifrons* (Motschulsky) in my 1951 key to the genus. *Pallifrons*, however, is larger, is Eastern in distribution and has the elytra definitely sooty and iridescent. In Champion's key to the Mexican and Central American species it runs to *laeviusculus* Champion. This species, also described from a unique male, from Vera Cruz, Mexico, and represented in my collection by three specimens, has the elytra strongly shining, with practically no pubescence visible and only a few erect black setae, distributed along the elytral margins. Also, the labrum in *laeviusculus* is black.

The following distributional records are in addition to those previously reported in Leng's Catalogue (1920) and Supplements and in the previous numbers of these "Studies."

*Collops necopinus* Fall, Colo., Wyo. *C. floridanus* Schaeffer, N. C. *C. balteatus* Lec., Tenn. *C. bridgeri* Tanner, Colo., Mont. *Temnosophus bimaculatus* Horn, Mich. *Tanaops testaceus* Marshall, Utah. *Attalus futilis* Fall, So. Dak. *A. atripennis* Fall, N. Mex. *A. humeralis* Lec., Wis. *A. unicolor* Horn, Calif. *A. zebriacus* Blatchley, Mich.

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#### THE PAUL N. MUSGRAVE COLLECTION OF DRYOPOIDEA

In the spring of 1930 I discovered my first water beetle of the family Elmidae in a small spring-fed stream near Lawrence, Kansas. It intrigued me that this beetle could not swim and I was challenged to learn something of its identity. Blatchley's Coleoptera of Indiana told me that it belonged to the family Parnidae and to the genus *Stenelmis* but I was unable to satisfactorily identify it further. This very early acquaintance with the long-toed or riffle beetles soon brought me into contact with my first professional correspondent, Paul N. Musgrave of Fairmont, West Virginia, a junior high school teacher who then was the recognized specialist in the Parnidae. Mr. Musgrave graciously offered to aid me with determinations, and for 25 years we have corresponded about Parnids. Time changes many things, including names and classifications, and soon the Parnidae was changed to Dryopidae, and the Dryopidae were divided to include Elmidae, Psephenidae, and Limnichidae. But Dr. Musgrave and I still continued to use Parnidae in correspondence to include the family assemblage.

In 1938, after earning a Ph.D. in entomology at West Virginia University, Dr. Musgrave moved to Huntington, West Virginia, where he now is Professor of Education at Marshall College. With increased responsibilities in education, especially at the teacher-training level, he found less and less time to devote to his beloved Parnids. Early in 1956 Dr. Musgrave wrote me that he had given up all work on water beetles, and with his characteristic generosity offered his collection to the Illinois Natural History Survey. On October 26, 1956, the Musgrave collection was accepted and transferred to the Survey.

This collection, totaling some 16,000 specimens, of adults and larvae, is perhaps the richest North American accumulation in the Dryopoidea. It contains an estimated 300 species of Dryopoidea, including nearly all of the United States species of Elmidae and Dryopidae plus considerable material from Mexico, the West Indies, Europe, Australia, and the Philippines. Dr. Musgrave earlier deposited holotypes of his own species in the collection of the U. S. National Museum, but the following *Stenelmis* types (Elmidae) are included in the Musgrave collection: *knobelae* Sanderson (holotype, allotype), *parva* Sanderson (holotype), *antennalis* Sanderson (holotype), and *convexula* Sanderson (holotype, allotype). In addition there is paratype material representing nearly 75 species.

The Musgrave collection will be incorporated into the general collection of Dryopoidea at the Illinois Natural History Survey. Each specimen will bear the Paul N. Musgrave Collection label. MILTON W. SANDERSON, Illinois Natural History Survey, Urbana.